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Recent Developments in Veterinary Anatomy at Iowa State College

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Recent Developments in Veterinary Anatomy at Iowa State College

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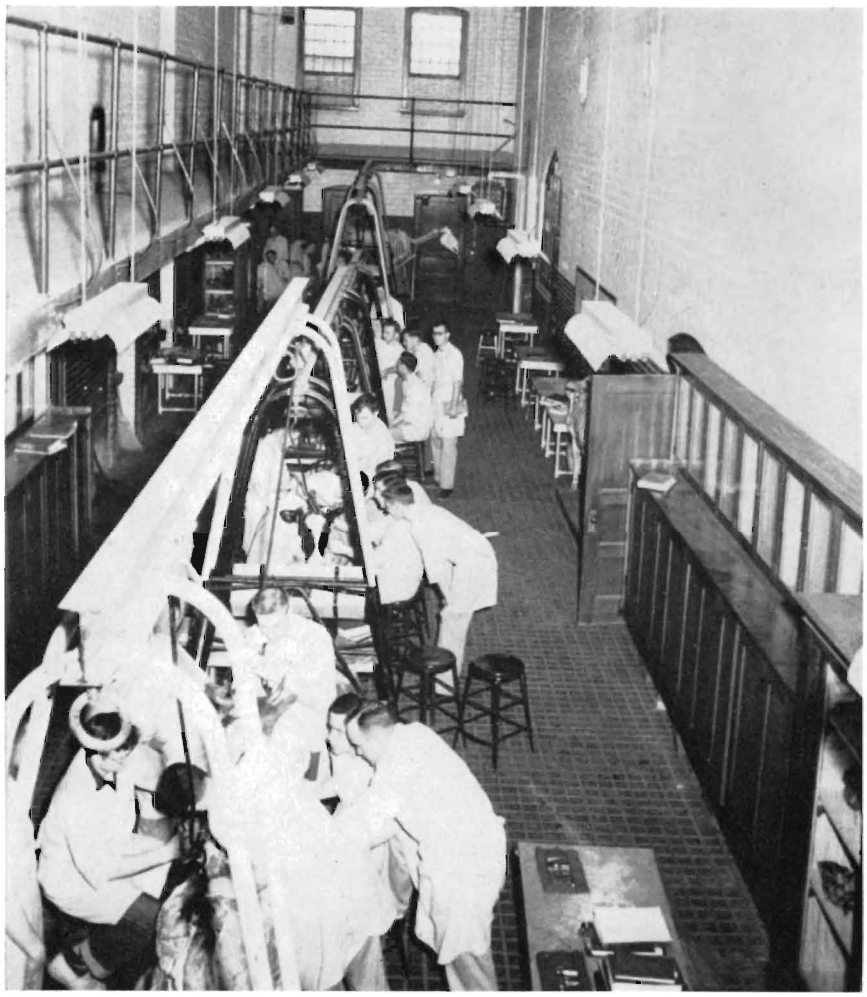
A CHECK ON FIGURES REVEALS that the credit hours in gross anatomy have been gradually reduced from 27 credit hours in 1930 to 15 credit hours in 1952. Histology, which was listed as 4 credits in 1930, has increased to 14 credits in 1952. These figures compare favorably with the credit hours offered in the various anatomy departments throughout the country today. Dr. Merchant (Dean of Veterinary Medicine at Iowa State College) and the Curriculum Committee made a rather thorough study a few years ago of the credit hours allocated to all the subjects in the four professional years in the various veterinary institutions. This figure is also within the 15 to 17 per cent clock-hours recommendation of the A.V.M.A. Council on Education as listed in the 1952 directory. However, we must admit we cannot hope to cover as completely the anatomy of the horse in one quarter when formerly two years were devoted to its study.

In addition to a gradual change in the credit hours offered, there has been a gradual change in the emphasis placed on the horse. As we all know, 20 to 25 years ago the horse was the major animal dissected. In fact, this is still true in a few institutions today. However, with the increased economic value of the cow and the increased value in small animals, it was deemed advisable to reduce the emphasis on the horse and increase our dissection time for the latter animals.

Two years were allotted for gross anatomy 20 years ago. Approximately 10 years ago the dissection time for the horse was reduced from three quarters (one year) to two quarters, leaving the spring quarter for comparative anatomy. Then approximately 5 years ago the dissection time was reduced to one quarter for the horse, one quarter on the dog and one quarter for comparative. At the same time it was believed by all members of the anatomy staff that the dog would make an excellent "pattern" animal for dissection. Most veterinary anatomists throughout the country today believe that the dog, because of its size, its availability, and the small student-specimen ratio, makes an ideal "pattern" animal. We believe that the student can more readily appreciate the disposition of omentum, the peritoneal reflections, the course of the intestinal tract, thoracic and abdominal viscera, etc., because the entire animal can be viewed at a glance. The structures can be more easily dissected and the course followed. Then, too, it is believed that the dissection

This material was abstracted from a report given by Dr. Getty, head of the Dept. of Veterinary Anatomy at Iowa State College, to the Faculty of the Division of Veterinary Medicine. Part II, describing Visual Aids and Their Application to the Teaching of Veterinary Anatomy, will follow in a subsequent issue.

of the horse is much easier after receiving a working knowledge of the animal body from the dissection of the dog. Economically it is a distinct advantage. One pays little for the 35 to 50 dogs we dissect annually, compared to the cost of 18 to 20 horses which would be necessary to cover the same material. Under our present program the fall quarter is devoted to the dog; the winter quarter, to the horse; and the spring quarter, to comparative anatomy with the dissection of the cow, sheep, hog and chicken.



Gross Anatomy Dissection Laboratory in Session.

Because of the reduced credit hours allocated to the teaching of anatomy, it was deemed advisable to offer a course in applied anatomy to the student in his clinical years. Also it is apparent to us that the knowledge of the freshman student is too limited during his first professional year to correlate all anatomical subject matter with other courses. The clinical student fully appreciates and realizes the value and need of such knowledge, and is cognizant of its application to clinical subjects and procedures. This has long been realized in the medical schools of our country, and I am happy to state several veterinary schools are now including applied anatomy or topographic anatomy in their curricula. Within the last few years we have started a collection of what we

term "dry specimens." This was made possible by developing an entirely different embalming formula here in this department. It consists largely of isopropyl alcohol and phenol, some glycerin and corn syrup, with only 3 per cent formalin. We are never troubled with mold or with the students' eyes tearing because of the strong formalin fumes which always have time this fall (1952). For example, we have dissections illustrating: (1) paralumbar block; (2) blocking of the pudendal nerve; (3) cornual nerve block; (4) blocking of the nerves to the eye; (5) the course of the nerves and blood vessels of the appendages; (6) the termination of the spinal cord and cauda equina in various animals; (7) and many others in the speci-

The Museum Room. Preserved specimens of the uro-genital system are kept in the case at the left. Several pregnant uteruses are on display on the table. The door on the extreme right leads into the walk-in cooler. Skeletons and preserved specimens are on display about the room.

accumulated in the past with the usual embalming fluids. The specimens are very pliable and moist, and the tissues retain their natural color. After a dissection is made it is allowed to dry. The specimen is tagged and sprayed with shellac or liquid plastic. We believe that by studying the various dissected specimens the student can in turn speed up his own dissection and at the same time know what to look for and how to proceed.

These same dry specimens are very useful in the course in applied anatomy which we are offering to the seniors for the first men room.

You may also be interested in the fact that within the last year we have macerated all of the bones we use by the use of sodium hydroxide and live steam, rather than the old classical bacterial method. Within 30 minutes to one hour it is possible to macerate a dog's skeleton and two to three hours will usually suffice as the macerating time for the skeleton of a horse or cow. Our main reason for changing was not so much the time factor but the odor problem. It has been a personal obsession on my part this last year

to eliminate the odors from this building in an attempt to break down the long-handed-down reputation of an odoriferous anatomy department. The new embalming fluid, the new macerating technique, and fresh paint in all the offices, laboratories and hallways have all aided, I hope, in overcoming this problem. The paint, by the way, was put on by student and staff help. We have several new laboratories, thanks to the help of Dr. Merchant and Dr. Bergman.

In order to allow the seniors actual experience in applied anatomy, we felt that the use of live animals was a must. Consequently, when the various anatomical areas are discussed and described in lecture the following laboratory period allows the student to actually palpate, see and perform on the live animals many of the things discussed in the lecture period. This past summer we were able to convert a basement room into a small animal laboratory and examination room for applied anatomy. A stanchion was also built in a double box stall in the basement for the proper restraint of the large animals. A new museum room was built this summer where the old horse stalls were formerly located. A new laboratory for the seniors is also nearing completion by the conversion of the old hayloft on the balcony.

A deep freeze and a walk-in cooler have been added within the last year in order to demonstrate the color, consistency, etc., of fresh tissue to the students. The walk-in cooler has already paid for itself in the following way: Due to the cooperation of the clinic staff we are able to purchase from the farmers, during the summer and throughout the year, cattle or horses which cannot be economically saved. By placing them in the walk-in cooler after embalming we can preserve them until the following year for dissection. With cattle at approximately $150 apiece, it doesn't take long to save $500 or more.

I believe more teaching aids should be developed, particularly the use of colored movies and lantern slides. Each animal could be dissected, photographed, animated drawings made, photomicrographs made, and the entire embryological, histological, and gross picture synchronized. Dr. Herrick and I attempted just this approach in our movie "The Reproductive Tract of the Cow," which I am glad to say has been viewed and sold not only throughout this country but also in Denmark, Sweden, France, Greece, Iraq, Iran, England, South Africa and Australia.

Regarding opportunities for graduate study, the department offers major work for the Master of Science degree and Doctor of Philosophy in both microscopic and gross anatomy. Students taking major work in other departments may minor in gross or microscopic anatomy. This past year four Ph.D. candidates in poultry husbandry were registered in our department; three candidates in science, from the physiology department; two Ph.D. candidates in animal husbandry; two from psychology; and two Ph.D. candidates in genetics have minored in the department in addition to our own staff personnel studying for advanced degrees. Thus the objectives of the department may be listed in three categories: (1) undergraduate instruction, (2) graduate instruction, and (3) research. The research program is divided in three categories: that nearing completion, that in progress, and long-term research.

Reprints may be obtained by writing to:

Iowa State College
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Iowa State College has been granted a fellowship established by the Pure Carbonic Company, a division of Air Reduction Company, Inc. of New York, for the purpose of studying the anesthetization of livestock with carbon dioxide gas prior to slaughter. It is hoped that a process can be developed which will be economical for small plants to use.

"When a farmer's pigs are neither sick nor well, and he himself has probably never seen a parasite-free herd anyway as a basis for comparison, he is apt to accept mediocre growth for good and fail to recognize his loss, to say nothing of its cause."

—Dr. D. C. Boughton